

EAST (Untitled 1)

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☒ (1) medical and tetramethyl adj diisocyanate  
☒ (2) tetramethyl adj diisocyanate  
☒ (3) tetramethyldiisocyanate  
☒ (107) butane adj diisocyanate  
☒ (4) (butane adj diisocyanate) and medical  
☒ (145) biodegradable and diisocyanate  
☒ (192) (biodegradable and diisocyanate) and medical  
☒ (23) (biodegradable and diisocyanate) and medical and prepolymer  
☒ (22) ((biodegradable and diisocyanate) and medical) and prepolymer and (butanediol or butan...  
☒ (4) ((biodegradable and diisocyanate) and medical) and prepolymer and (butanediol or butan...  
☒ (4) biodegradable and diisocyanate and chain adj extender  
☒ (4) biodegradable and diisocyanate and chain adj extender

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 ...

one due to the higher nucleophilicity of the nitrogen atom, urea groups are formed.

The urethane formation reaction is largely influenced by the reaction conditions and the catalyst used. The insertion reaction in urethane synthesis is normally catalyzed by alkyl tin compounds or tertiary amines, the former being more effective for producing elastomeric polyurethanes (S. L. Reegan and K. C. Frisch, Adv. Urethane Sci. Technol. 1, 1 (1971)). Furthermore, tin catalysts are specific toward the hydroxyl-isocyanate reaction, whereas tertiary amines catalyze both the hydroxyl-isocyanate as well as the water-isocyanate reactions (L. R. Brecker, Plant. Engr. 33(1), 19 (1977)).

The two most widely used isocyanates in industrial polyurethane synthesis are toluene diisocyanate (TDI) and methylene bis(p-phenyl isocyanate) called also 4,4'-diphenylmethane diisocyanate (MDI). The latter is not only more reactive, but also the polymers containing MDI generally exhibit better physical properties. Typical aliphatic isocyanates include 1,6-hexane diisocyanate (HDI), methylene bis(p-cyclohexyl isocyanate) (H12MDI) and isophorone diisocyanate (IPDI).

Polyurethanes comprising aliphatic isocyanates possess higher hydrolytic and thermal stability, but this often results in a polymer displaying lower

☒ Search ☒ Filter ☒ Groups ☒ Text ☒ HTML

Type	Hit#	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
1 BPS	0	medical and tetramethyl adj diisocyanate	USPAT	2001/05/10 08:27			0
2 BPS	0	tetramethyl adj diisocyanate	USPAT	2001/05/10 08:28			0
3 BPS	1	tetramethyldiisocyanate	USPAT	2001/05/10 08:28			0
4 BPS	107	butane adj diisocyanate	USPAT	2001/05/10 08:28			0
5 BPS	4	(butane adj diisocyanate) and medical	USPAT	2001/05/10 08:27			0
6 BPS	145	biodegradable and diisocyanate	USPAT	2001/05/10 08:30			0
7 BPS	192	((biodegradable and diisocyanate) and medical	USPAT	2001/05/10 08:30			0
8 BPS	63	((biodegradable and diisocyanate) and	USPAT	2001/05/10 08:30			0
9 BPS	22	((biodegradable and diisocyanate) and	USPAT	2001/05/10 08:30			0
10 BPS	4	((biodegradable and diisocyanate) and	USPAT	2001/05/10 08:53			0
11 BPS	0	biodegradable and diisocyanate and chain adj	USPAT	2001/05/10 08:54			0
12 BPS	14	biodegradable and diisocyanate and chain adj	USPAT	2001/05/10 08:54			0

☒ Details ☒ HTML

Ready

5-10-02

113

1 15887-14-6  
(15887-14-6/RN)

=> d

113 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RN 15887-14-6 REGISTRY

CN Carbamic acid, 1,4-butanediylbis-, bis(4-hydroxybutyl) ester (9CI) (CA  
INDEX NAME)

OTHER CA INDEX NAMES:

CN 1,4-Butanediol, tetramethylenedicarbamate (2:1) (8CI)

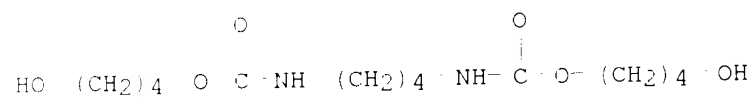
CN Carbamic acid, tetramethylenedi-, bis(4-hydroxybutyl) ester (8CI)

FS 3D CONCORD

MF C14 H28 N2 O6

CI COM

LC STN Files: CA, CAPLUS, TOXCENTER



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

5 REFERENCES IN FILE CA (1967 TO DATE)

5 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=>

L9 ANSWEP 1 OF 5 CAPLUS COPYRIGHT 2002 ACS  
 AN 1999:75806 CAPLUS  
 DN 130:241269  
 TI A new biomedical polyurethane with a high modulus based on 1,4-butane diisocyanate and .epsilon.-caprolactone  
 AU Spaans, C. J.; De Groot, J. H.; Belgraver, V. W.; Pennings, A. J.  
 CS Department of Polymer Chemistry, University of Groningen, Groningen, 9747 AG, Neth.  
 SO Journal of Materials Science: Materials in Medicine (1998), 9(12), 675-678  
 CMEN: JMMEL; ISSN: 0957-4530  
 PB Kluwer Academic Publishers  
 DT Journal  
 LA English  
 CC (6-7 Pharmaceuticals)  
 Section cross-reference(s): 37  
 AB A new approach to the synthesis of biomedical polyurethanes based on .epsilon.-caprolactone and 1,4-butane diisocyanate with a high modulus, was developed. By chain extending an .epsilon.-caprolactone prepolymer with a long uniform-size diisocyanate block, a segmented polyurethane with uniform-size hard segments was obtained. It shows excellent mech. properties; an extremely high modulus of 105 MPa and a tensile strength of 35 MPa. The polymer is sol. at high concns. in various volatile solvents such as chloroform and 1,4-dioxane. By a combination of salt-leaching and freeze-drying, porous materials have been obtained in which macropores ranging in size from 150-300 .mu.m are highly interconnected by micropores. The material shows a sufficiently high compression modulus of 200 kPa and appears to be suitable for biomedical applications such as meniscal prostheses.  
 ST biomedical butanediol diisocyanate caprolactone copolymer property;  
 polyester polyurethane biomedical property prepn  
 IT Polyurethanes, biological studies  
 FL: PFP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIDL (Biological study); PREP (Preparation); USES (Uses)  
 (polyester-, block; prepn. of biomedical polyurethane with a high modulus based on butanediol diisocyanate and caprolactone)  
 IT Compression  
 Glass transition temperature  
 Prosthetic materials and Prosthetics  
 Stress-strain relationship  
 Tensile strength  
 Viscosity  
 (prepn. of biomedical polyurethane with a high modulus based on butanediol diisocyanate and caprolactone)  
 IT Polyurethanes, preparation  
 FL: PCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of biomedical polyurethane with a high modulus based on butanediol diisocyanate and caprolactone)  
 IT 50474-93-1P 221385-21-3P  
 FL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIDL (Biological study); PREP (Preparation); USES (Uses)  
 (prepn. of biomedical polyurethane with a high modulus based on butanediol diisocyanate and caprolactone)  
 IT 15887-14-6P  
 FL: PCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of biomedical polyurethane with a high modulus based on butanediol diisocyanate and caprolactone)  
 RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

- 1 Allen, C; Organic Syntheses Collective 1995, V3, P846
  - 2 Oenen, J; European Burn Association 5th Congress 1993
  - 3 Oenen, J; The 8th International Congress on Burn Injuries 1990
  - 4 de Groot, J; Biomaterials 1996, V17, P163 CAPLUS
  - 5 de Groot, J; Biomaterials 1997, V18, P613 MEDLINE
  - 6 de Groot, J; Coll Polym Sci 1990, V268, P1073 CAPLUS
  - 7 de Groot, J; Polym Bull in press
  - 8 Elema, H; Coll Polym Sci 1990, V268, P1082 CAPLUS
  - 9 Gogolewski, S; Proceedings of the SPE International Conference on Medical Plastics 1988, P141
  - 10 Ressels, J; PhD thesis University of Groningen 1991
  - 11 Elomphaker, J; J Orthop Res 1992, V10, P359 MEDLINE
  - 12 Lelah, M; Polyurethanes in Medicine 1986
  - 13 Pennings, A; Coll Polym Sci 1990, V268, P2 CAPLUS
  - 14 Spaans, C; Polym Bull 1998, V41, P131 CAPLUS
  - 15 Spaans, C; to be published
  - 16 Snycker, M; J Biomater Appl 1988, V1, P297 CAPLUS
  - 17 Wesolowski, A; Surgery 1961, V50, P31
- L9 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS  
AN 1998:176874 CAPLUS  
LN 1998:176874  
TI High-molecular-weight polyurethanes and a polyurethane urea based on 1,4-butanediisocyanate  
AU Spaans, C. C.; De Groot, J. H.; Dekens, F. G.; Pennings, A. J.  
JS Department Polymer Chemistry, University Groningen, Groningen, 9747 AG, Neth.  
SO Polym. Bull. (Berlin) (1998), 41(2), 131-138  
CODEN: POBUDF; ISSN: 0170-0839  
PB Springer-Verlag  
DT Journal  
LA English  
CC 39-4 (Synthetic Elastomers and Natural Rubber)  
Section cross-reference(s): 63  
AB New biomedical polyurethanes and a polyurethane urea based on epsilon-caprolactone and 1,4-diisocyanatobutane were developed. On degradn., only non-toxic products are produced. The polyurethane urea with poly(epsilon-caprolactone) soft segments and butane diisocyanate/butanediamine hard segments shows a high tensile strength, a high modulus, and a high resistance to tearing but as a result of the strong interactions between the solvent and the polymer processing is difficult. When butanediamine is replaced by butanediol in the chain extension step, a processible polyurethane is obtained but the polymer lacks the desired mech. properties for biomedical applications. By chain extending with a longer urethane diol block, a processible polymer was obtained with mech. properties comparable to the polyurethane urea. This polyurethane was made porous and can be used as a meniscal prosthesis.  
ST butane diisocyanate caprolactone polyurethane polyurea biomedical  
IT Polyester-polyurethanes  
EL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (block; prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)  
IT Prosthetic materials (meniscus; prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)  
IT Polyurethanes, preparation  
EL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (polyester-polyurea-, block; prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)  
IT Polyureas  
EL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

polyester-polyurethane-, block; prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)

IT Polyesters, preparation  
 RL: PEP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (polyurea-polyurethane-, block; prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)

IT Polymer morphology  
 Tensile strength  
 (prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)

IT **15887-14-6P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PEP (Preparation)  
 (chain extender; prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)

IT 110-83-4, 1,4-Butanediol, reactions 4538-37-8, 1,4-Diisocyanatobutane  
 RL: RCT (Reactant)  
 (prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)

IT 213281-80-4P 213281-81-5P 213281-82-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PEP (Preparation)  
 (prepn. and properties of polyurethanes and a polyurethane urea based on butane diisocyanate for biomedical applications)

L9 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS

AN 1970:498435 CAPLUS

DN 71:39435

TI Bis(omega.-hydroxyalkyl)-butane-1,4-dicarbamates

IN Ozaki, Shoichiro; Kato, Koza

PA Mitsui Toatsu Chemicals Co., Ltd.

SO Jpn. Tokkyo Koho, 5 pp.

CODEN: JAXXAD

DT Patent

LA Japanese

NCL 10B81

CC 2- (Aliphatic Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BI	JP 45020287	B4	19700710	JP	19660627
AB	<p>A mixt. of 103.3 g HO(CH<sub>2</sub>)<sub>2</sub>OC(=O)NHCH<sub>2</sub>CH<sub>2</sub>CH(CH<sub>2</sub>)<sub>2</sub>NHCO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>OH, 400 ml MeOH, 1 g Et<sub>3</sub>C, and 30 atm pressure H was shaken at 10.degree. 3 hr to give 103.7 g HO(CH<sub>2</sub>)<sub>2</sub>OC(=O)NH(CH<sub>2</sub>)<sub>4</sub>NHCO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>OH (I). (HO(CH<sub>2</sub>)<sub>4</sub>OC(=O)NH(CH<sub>2</sub>)<sub>4</sub>NHCO<sub>2</sub>(CH<sub>2</sub>)<sub>4</sub>OH (II) was similarly prepd. I and II are useful intermediates to polyurethane.</p>				
ST	butanedicarbamates hydroxyalkyl; carbamates butanedi hydroxyalkyl				
IT	<b>15887-14-6P</b>		24682-14-2P		
	RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				

L9 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2002 ACS

AN 1969:439543 CAPLUS

DN 71:39543

TI Saturated and unsaturated aliphatic polyurethanes

AU Miyake, Yasuhiko; Ozaki, Shoichiro; Hirata, Yoshio

CC Cent. Res. Lab., Toyo Katsui Ind. Inc., Yokohama, Japan

SO J. Polym. Sci., Part A-1 (1969), 7(3), 899-916

CODEN: JPLCAT

IT Journal

LA English

35 (Synthetic High Polymers)  
 Satd. and unsatd. aliphatic polyurethanes were obtained by 3 different routes. In route 1, 1,4-dichloro-2-butene, sodium cyanate, and methanol were treated to give dimethyl 2-butene-1,4-dicarbamate. This is hydrogenated easily to give dimethyl butane-1,4-dicarbamate (I). Ester exchange reaction of I with glycol gave a satd. aliphatic polyurethane. In route 2, 1,4-dichloro-2-butene, sodium cyanate and excess glycol were treated to give bis( $\omega$ -hydroxyalkyl 2-butene-1,4-dicarbamate. This was hydrogenated to give bis( $\omega$ -hydroxyalkyl) butane-1,4-dicarbamate. A glycol elimination reaction gave poly(polymethylene tetramethylenedicarbamate). By route 3, 1,4-dichloro-2-butene, sodium cyanate, and glycol were treated to give poly(polymethylene 2-butene-1,4-dicarbamate).  
 ST polyurethanes unsatd aliph; unsatd aliph polyurethanes; aliph polyurethanes unsatd; polypolymethylene butenedicarbamates; butenedicarbamates polymers; carbamates butene  
 IT Polymerization catalysts  
 (antimony oxide, for dicarbamate with glycols by ester exchange)  
 IT Methane polymers, preparation  
 PL: PREP (Preparation)  
 (from dicarbamates with glycols by ester exchange)  
 IT Polymerization  
 (of dicarbamates with glycols by ester exchange)  
 IT 61-54-4 1309-54-4, uses and miscellaneous  
 PL: CAT (Catalyst uses); USES (Uses)  
 (catalysts, for polymn. of bis(hydroxybutyl) tetramethylenedicarbamate)  
 IT 15887-14-6P 16753-84-7P 22430-71-3P 22430-72-4P  
 26913-41-1P 24682-14-2P 26873-56-3P 26873-57-4P 26913-40-6P  
 26913-41-1P  
 PL: SEN (Synthetic preparation); PREP (Preparation)  
 (prepn. of)  
 IT 14413-39-3P 27811-43-4P  
 PL: SEN (Synthetic preparation); PREP (Preparation)  
 (prepn. of, catalysts for)  
 L9 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS  
 AN 1968:30520 CAPLUS  
 DN 68:30520  
 TI Chemistry of isocyanic acid and its derivatives. III. New method for preparing saturated and unsaturated aliphatic polyurethanes  
 AU Tsaki, Shoichiro  
 OS Toyo Katsui Ind., Inc., Yokohama, Japan  
 SO J. Polym. Sci., Polym. Lett. Ed. (1967), 5(12), 1053-6  
 CODEN: JPYBAN  
 IT Journal  
 LA English  
 CC 36 (Plastics Manufacture and Processing)  
 AB The subject polyurethanes are prepd. without using a diamine, by treating 1,4-dichloro-2-butene (I) with NaOCN and a diol. Thus, a mixt. of I 50, NaOCN 60, 1,4-butanediol 90 g., and 200 ml. HCONMe<sub>2</sub> was heated 4 hrs. at 120.degree. to yield 96.5% bis(4-hydroxybutyl 2-butene-1,4-dicarbamate (II). II was hydrogenated over Pd/C (700 psi.) in MeOH to yield bis(4-hydroxybutyl) butane-1,4-dicarbamate, which was heated 3 hrs. at 175.degree./13 mm., and 14 hrs. at 180-2.degree./0.35 mm., to yield 95.5% poly(tetramethylene tetramethylenedicarbamate) (III), m. 192.degree.. The same reactants in MeCONMe<sub>2</sub> were heated in vacuo prior to hydrogenation to yield 98.3% poly(tetramethylene 2-butene-1,4-dicarbamate) (IV), m. 85-95.degree.. IV was then hydrogenated to yield 98% III. I was also treated with NaOCN in MeOH to yield 65% di-Me 2-butene-1,4-dicarbamate, m. 134.degree., which was hydrogenated to yield di-Me butane-1,4-dicarbamate (V), m. 127.degree.. V was then heated in vacuo with 1,6-hexanediol to yield 95.6% poly(hexamethylene tetramethylenedicarbamate), m. 184.degree..

IT POLYURETHANES UNSATD  
IT Urethane polymers, preparation  
RL: PREP (Preparation)  
(from 1,4-butanediol and 1,4-dichloro-2-butene and sodium cyanate)  
IT 15887-12-4P 15887-13-5P **15887-14-6P** 16753-84-7P  
26873-56-3P 26913-39-3P 26913-40-6P 27811-43-4P 30029-00-6P  
32028-60-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

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L14 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RN 17977-37-6 REGISTRY

CN Carbamic acid, 1,6-hexanediylbis-, bis(2-hydroxypropyl) ester (9CI) (CA  
INDEX NAME)

OTHER CA INDEX NAMES:

TM Carbamic acid, hexamethylenedi-, bis(2-hydroxypropyl) ester (8CI)

FS 3D CONCORD

MF C14 H28 N2 O6

LC STN Files: CA, CAPLUS

OH

O

O

OH

Me CH CH2 O C NH (CH2)6 NH C O CH2 CH Me

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1967 TO DATE)

2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=>



L11 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2002 ACS

AN 1--4:425031 CAPLUS

Correction of: 1984:105162

IN 1--4:25031

Correction of: 100:105162

TI Use of urethane glycols as blocked diisocyanates

AU Mikheev, V. V.; Svetlakov, N. V.; Semenova, L. V.

CS Khim.-Tekhnol. Inst., Kazan, USSR

SO Lakokras. Mater. Ikh Primen. (1983), (6), 5-6

CODEN: LAMAAD; ISSN: 0023-737X

BT Journal

LA Russian

CT 4--1 (Coatings, Inks, and Related Products)

AB Diurethane glycols are prepd. by reacting  $\text{H}_2\text{N}(\text{CH}_2)_6\text{NH}_2$  with ethylene carbonate or 1,2-propylene carbonate and used as curing agents for OH group-contg. oligomeric polyesters and epoxy resins. The mixt. is used as a one-package polyurethane coating compn. Curing of the oligomeric polyesters or epoxy resins with diurethane glycols at 200.degree. gives in 1 h a coating contg. 40% crosslinked polymer. The addn. of transition metal acetylacetonates or, esp., dibutyl tin dilaurate increases the degree of crosslinking to 80%. Converting the glycols to diacetates or dichlorides improves their soly. without changing the cure.

ST Diurethane glycol crosslinking agent coating; polyester urethane coating crosslinking; catalyst crosslinking urethane coating; polyurethane coating crosslinking; butylol laurate crosslinking catalyst

IT Coating materials

(one-package, heat-curable, polyurethanes)

IT Crosslinking catalysts

(thermal, for polyurethane 1-package coatings)

IT Polymer degradation

(thermal, of epoxy- and polyester-polyurethane coatings)

IT 84-4-27-7 13395-16-9 14024-48-7 14284-89-0

FI: CAT (Catalyst use); USES (Uses)

catalysts, for crosslinking of polyurethane 1-package coatings)

IT 77-29-6D, polymers with diurethane glycols and trimethylpropane

88-1-7D, polymers with diurethane glycols and epichlorohydrin 85-44-9D,

polymers with diurethane glycols and trimethylpropane 106-89-8D,

polymers with bisphenol A and diurethane glycols 9083-73-2D, polymers

with diurethane glycols 13027-07-1D, polymers with hydroxy-terminated

oligomers 17977-37-6D, polymers with hydroxy-terminated

oligomers 64296-18-8D, polymers with diurethane glycols

FI: TEM (Technical or engineered material use); USES (Uses)

coatings, 1-package, heat-curable)

IT 88-2-74-2

FI: TEM (Technical or engineered material use); USES (Uses)

coatings, thermal degrdn. of crosslinked)

L11 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2002 ACS

AN 1984:105162 CAPLUS

IN 100:105162

TI Use of urethane glycols as blocked diisocyanates

AU Mikheev, V. V.; Svetlakov, N. V.; Semenova, L. V.

CS Khim.-Tekhnol. Inst., Kazan, USSR

SO Lakokras. Mater. Ikh Primen. (1983), (6), 5-6

CODEN: LAMAAD; ISSN: 0023-737X

BT Journal

LA Russian

CT 43-10 (Coatings, Inks, and Related Products)

AB Diurethane glycols are prepd. by reacting  $\text{H}_2\text{N}(\text{CH}_2)_6\text{NH}_2$  with ethylene carbonate or 1,2-propylene carbonate and used as curing agents for OH

group-contg. oligomeric polyesters and epoxy resins. The mixt. is used as a one-package polyurethane coating compn. Curing of the oligomeric polyesters or epoxy resins with diurethane glycols at 200.degree. gives in l.s. a coating contg. 40% crosslinked polymer. The addn. of transition metal acetylacetonates and, esp., dibutylol dilaurate [624-07-7] increases the degree of crosslinking to >90%. Converting the glycols to diacetates or dichlorides improves their soly. without changing the cure.

ST urethane glycol crosslinking agent coating; polyester urethane coating crosslinking; epoxy urethane coating crosslinking; catalyst crosslinking urethane coating; polyurethane coating crosslinking; butylol laurate crosslinking catalyst

IT Coating materials  
     one-package, heat-curable, polyurethanes)

IT Crosslinking catalysts  
     thermal, for polyurethane 1-package coatings)

IT Polymer degradation  
     thermal, of epoxy- and polyester-polyurethane coatings)

IT 624-07-7 13395-16-9 14024-48-7 14284-89-0  
 FL: CAT (Catalyst use); USES (Uses)  
     (catalysts, for crosslinking of polyurethane 1-package coatings)

IT 77-99-6D, polymers with diurethane glycols and trimethylpropane  
 80-05-7D, polymers with diurethane glycols and epichlorohydrin 85-44-9D,  
 polymers with diurethane glycols and trimethylpropane 106-89-8D,  
 polymers with bisphenol A and diurethane glycols 9083-73-2D, polymers  
 with diurethane glycols 13027-07-1D, polymers with hydroxy-terminated  
 oligomers 17977-37-6D, polymers with hydroxy-terminated  
 oligomers 64296-16-8D, polymers with diurethane glycols  
 FL: TEM (Technical or engineered material use); USES (Uses)  
     (coatings, 1-package, heat-curable)

IT 88992-74-9  
 FL: TEM (Technical or engineered material use); USES (Uses)  
     (coatings, thermal degrdn. of crosslinked)

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112 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RI 13027-08-2 REGISTRY

IN Carbamic acid, 1,6-hexanediylbis-, bis(2-hydroxy-1-methylethyl) ester  
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

IN Carbamic acid, hexamethylenedi-, bis(2-hydroxy-1-methylethyl) ester (7CI,  
8CI)

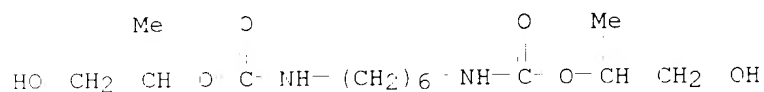
PS 3D CONCORD

ME C14 H28 N2 O6

CI CCM

LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS

(\*File contains numerically searchable property data)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

4 REFERENCES IN FILE CA (1967 TO DATE)  
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
4 REFERENCES IN FILE CAPLUS (1967 TO DATE)  
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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=> d 1-4 all

L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2002 ACS

AN 1993:473821 CAPLUS

DN 119:73821

TI Polyurethane prepolymer for the manufacture of plastic foam

IN Liakumovich, Aleksandr G.; Mikheev, Vitalij V.; Kirpichnikov, Petr A.; Semenova, Lyubov V.; Akhmedyanova, Raisa A.; Garipov, Ruslan M.; Valeev, Fauf A.; Kolosov, Sergej A.; Nefedov, Vladimir P.; et al.

PA Kz Khim-t i im.s.m.kirova, USSR

SO U.S.S.F.

From: Izobreteniya 1992, (39), 74.

CODEN: UPEXAF

DT Patent

LA Russian

IC 11M C08G018-10

ICI C08G018-10, C08G101-00

CC 37-3 (Elastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	SU 1770324	A1	19921023	SU 1989-4668683	19890222
AB	The title prepolymer with improved storage stability is prepd. by reaction of a polyoxyalkylene polyol with 1,6-hexamethylenebis(1-methyl-2-hydroxyethylcarbamate) at 150-170.degree. and 2.0-2.7 kPa, in the presence of an organotin compd. as a catalyst.				
ST	polyurethane foam prepolymer manuf; storage stability polyurethane foam prepolymer; hexamethylenebismethylhydroxyethylcarbamate polyoxyalkylene prepolymer polyurethane foam				
IT	Urethane polymers, preparation				
FL	PREP (Preparation)				
	(polyoxyalkylene-, oligomeric, prepn. of, for plastic foam)				
IT	Polyoxyalkylenes, compounds				
FL	USES (Uses)				
	(reaction products, with hexamethylenebis(hydroxyethyl carbamate), components for plastic foam)				
IT	7440-31-50, Tin, org. compds.				
FL	CAT (Catalyst use); USES (Uses)				
	(catalysts, polyoxyalkylene polyol polyetherification with hexamethylenebis(hydroxyethyl carbamate) in presence of)				
IT	13027-08-2DP, reaction products with polyoxyalkylene polyols				
FL	PREP (Preparation)				
	(prepn. of, as prepolymers for plastic foam)				

L7 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2002 ACS

AN 1990:199667 CAPLUS

DN 112:199667

TI Synthesis of epoxy urethane oligomers by the reaction of oligoepoxides with urethane glycols

AU Mikheev, V. V.; Garipov, R. M.; Gafiatullin, N. G.

CS Kazan. Khim. Tekhnol. Inst., Kazan, USSR

SO Vysokomol. Soedin., Ser. B (1989), 31(12), 915-17

CODEN: VYSBAI; ISSN: 0507-5483

DT Journal

LA English

CC 37-3 (Plastics Manufacture and Processing)

AB Epoxy-urethane oligomers were synthesized by the reaction of low-mol. wt. bisphenol A epoxy oligomers ED-20 and E-40 (epoxy group content 22.6 and 15.4%, resp.) and urethane-contg. glycols, obtained by propylene carbonate interaction with ethylenediamine or hexaneethylenediamine at 2:1 mol ratio.

ST epoxy urethane oligomer synthesis; urethane glycol reaction epoxy oligomer  
 IT Urethane polymers, preparation  
 FL: SPN (Synthetic preparation); PREP (Preparation)  
 (epoxy, prepn. of, by reaction of bisphenol A oligomers with  
 urethane-contg. glycols)  
 IT Epoxy resins, preparation  
 FL: SPN (Synthetic preparation); PREP (Preparation)  
 (polyurethane-, prepn. of, by reaction of bisphenol A oligomers with  
 urethane-contg. glycols)  
 IT 13027-08-0, ED 20  
 PL: USES (Uses)  
 (oligomeric, reaction of, with urethane-contg. glycols)  
 IT 13027-08-0 13027-08-2  
 FL: RCT (Reactant)  
 (reaction of, with bisphenol A epoxy oligomer)

L7 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2002 ACS  
 AN 1983:133438 CAPLUS  
 DN 198:133438  
 TI Curing of acrylic copolymers by urethane glycol  
 AU Mikhnev, V. V.; Svetlakov, N. V.; Stepanova, G. S.  
 CS FKHETI Im. Kirova, Kazan, USSR  
 SO Lakokras. Mater. Ikh Primen. (1987), (6), 26-8  
 CIEN: LAMAAAD; ISSN: 0023-737X  
 IT Journal  
 LA Russian  
 CC 41-3 Coatings, Inks, and Related Products:  
 AB Curing of Bu methacrylate-glycidyl methacrylate copolymers contg. 3.0-9.1-  
 epoxy groups with bis(1-methyl-2-hydroxyethyl)hexane-1,6-dicarbamate (I),  
 taken in equiv. amts. with respect to epoxy and urethane groups, at  
 150.degree. for 1 h in the presence of 1.5% dibutyltin dilaurate as a  
 catalyst gave coatings contg. >80% gel fraction and having good  
 physicochem. properties. Longer (2 h) cure and higher (4%) catalyst  
 concn. were required to obtain >80% gel fraction at 150.degree.. A  
 decrease in the urethane-epoxy group mole ratio of the coatings to 0.2-0.6  
 reduced their crosslink d. and tensile strength (from 26.4 to 15.3-22.9  
 MPa). The curing proceeded via epoxy group reaction with urethane and OH  
 groups of I, epoxy ring-opening polymn., and polycondensation of I.  
 ST curing polyacrylate epoxy polyurethane coating  
 IT Coating materials  
 (epoxy-polymethacrylate-polyurethanes, curing of)  
 IT Coating materials  
 (powder, epoxy-polymethacrylate-polyurethanes, prepn. and properties  
 of)  
 IT Crosslinking catalysts  
 (thermal, dibutyltin dilaurate, for epoxy-polymethacrylate-polyurethane  
 coatings)  
 IT Crosslinking  
 (thermal, of epoxy-polymethacrylate-polyurethane coatings)  
 IT 77-53-7, Dibutyltin dilaurate  
 FL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for crosslinking of epoxy-polymethacrylate-polyurethane  
 coatings)  
 IT 113546-96-6P  
 FL: SPN (Synthetic preparation); TEM (Technical or engineered material  
 use); PREP (Preparation); USES (Uses)  
 (coatings, prepn. and properties of crosslinked)  
 IT 19951-87-5, Butyl methacrylate-glycidyl methacrylate copolymer  
 FL: RCT (Reactant)  
 (crosslinking of, with bis(methylhydroxyethyl)hexane dicarbamate, in  
 coatings, mechanism of)  
 IT 13027-08-2

RL: USES (Uses)

(crosslinking with, of Bu methacrylate-glycidyl methacrylate copolymers, in coatings, mechanism of)

17 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2002 ACS

AN 1987:51724 CAPLUS

EN 106:51724

TI Curing of epoxy oligomers with urethane glycol and its diacetate

AU Mikheev, V. V.; Svetlakov, N. V.; Semenova, L. V.

ES KKRTI Im. Kirova, Katan, USSR

LC Lakokras. Mater. Ikh Primen. (1986), (4), 11-13

COLEN: LAMAAD; ISSN: 0023-737X

BT Journal

LA Russian

CC 42-3 (Coatings, Inks, and Related Products)

AB Crosslinking of epoxy resin(E-40 [25068-38-6]) coatings with an equimol. amt. of bis(1-methyl-2-hydroxyethyl) 1,6-hexanedicarbamate (I) [

**13027-08-2**] at 200.degree. gave 85% gel fraction in 15 min. The crosslinking was a combination of I OH group-epoxy group reaction, transesterification of I with epoxy resin, and polycondensation of I, proceeding in parallel and/or sequentially. The rate of crosslinking did not change significantly on substitution of I with its diacetate [106550-22-9], but lowering the amt. of I diacetate inhibited the reaction, which was not obsd. for I. This led to the assumption that crosslinking with I diacetate proceeded by replacement of the acetate group with formation of an epoxy ether, followed by reaction of the product with epoxy group. This mechanism was confirmed by model compd. reactions. The cured coatings had enhanced physicochem. and protective properties and thermal stability (5% wt. loss at 240-255.degree.).

BT crosslinking epoxy coating urethane glycol

IT Coating materials

epoxy resin, urethane glycol- or diacetate-cured, prepn. properties of

IT Crosslinking

(of epoxy resin coatings with urethane glycols and diacetates, mechanism of)

IT Crosslinking agents

(urethane glycols and diacetates, for epoxy resin coatings)

IT 25068-38-6, E 40

RI: TEM (Technical or engineered material use); USES (Uses)

(coatings, crosslinking of E 40, with urethane glycols or diacetates, mechanisms of)

IT 106363-80-6P 106392-14-7P

RI: SPN (Synthetic preparation); TEM (Technical or engineered material use); PFEP (Preparation); USES (Uses)

(coatings, prepn. and properties of)

IT 106392-15-3 106446-61-1

RI: TEM (Technical or engineered material use); USES (Uses)

(coatings, thermal stability of)

IT **13027-08-2** 106550-22-9

RI: USES (Uses)

(crosslinking with, of epoxy resin coatings, mechanism of)

IT 12590 70-0P 82499-65-8P 106372-78-5P

RL: PRP (Properties); SPN (Synthetic preparation); PFEP (Preparation)

(prepn. and characterization of, as models for epoxy resin crosslinking products with urethane glycol diacetates)

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